# Calvert Cliffs 1
# 3Q/2009 Plant Inspection Findings

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## Initiating Events

**Significance:** G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
**Did Not Comply with Technical Specification Requirements While Starting Reactor Coolant Pumps**
The inspectors identified an NCV of Technical Specifications (TS) 3.4.5, “RCS Loops – Mode 3,” because Constellation did not comply with the required starting conditions for reactor coolant pumps (RCPs) during several plant startups on Unit 1. The inspectors identified a discrepancy between the RCP starting requirements described in the operating instructions (OI) and the RCP starting requirements listed in the TS for loop operability. Specifically, the OI did not provide operators with adequate procedural guidance to meet the Mode 3, 4, and 5 TS RCP starting requirements prior to starting RCPs. Constellation entered this issue into their corrective action program (CAP) for resolution. The immediate corrective actions included revising OI-1A, “Reactor Coolant System and Pump Operations,” to ensure that the TS starting conditions are met prior to starting any RCPs.

This finding is more than minor because it is associated with the procedure quality attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, starting a RCP while not meeting the starting requirements could cause a pressure transient and lift a pressurizer PORV. The inspectors determined that the finding is of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. This finding has a cross-cutting aspect in the area of human performance because Constellation did not provide complete, accurate, and up-to-date procedures that were adequate to assure nuclear safety. Specifically, OI-1A included requirements that were contrary to the TS and led to the operators’ failure to comply with the TS when starting RCPs (H.2.c per IMC 0305).

Inspection Report# : 2009002 *(pdf)*

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## Mitigating Systems

**Significance:** G Aug 28, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
**Inadequate Test control of Safety Related Batteries**
The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," in that Constellation did not assure that required testing was performed in accordance with written test procedures and that test results were documented and evaluated to verify that test requirements were satisfied. Specifically, there were instances where Constellation did not correctly calculate batery capacity, record battery voltages, and properly load the battery during the 11 and 21 station battery discharge tests. In response, Constellation entered the issue into the corrective action program and determined that there was sufficient battery margine to assure operability of the station batteries.

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single3 train, and did not screen as

potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of Human Performance, Resources Component, because Constellation did not ensure that complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the battery discharge test procedures did not ensure that capacities were correctly calculated, critical voltages were recorded, and battery test loading parameters were correct.
Inspection Report# : 2009006 *(pdf)*

**Significance:** G Aug 28, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
**U=Inadequate Design Control for 125 Vdc System**
The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that, Constellation did not assure that the design basis was correctly translated into specifications, drawings, procedures, and instructions. Specifically, Constellation did not assure that design inputs were appropriate, calculations were performed corectly, and design changes were incorporated into the 125 Vdc system design documents. In response, Constellation entered the issue into the correctve action program and determined that the station batteries were operable based upon battery age and capacity, and an assessment of the specific deficiencies.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was a design or qualification deficiency that did not result in a loss of the 125 Vdc system operability or functionality. This finding has a cross-cutting aspect in the area of Human Performance, Resources Component, because Constellation did not ensure that complege, accurate, and up-to-date design documentation was available and adequate to assure nuclear safety. Specifically, Constellation did not assure that design inputs were appropriate, calculations were done correctly, and design changes were incorporated into the 125 Vdc design documents. (IMC 0305, Aspect H.2(c)).
Inspection Report# : 2009006 *(pdf)*

**Significance:** G Aug 28, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
**Inadequate Design Control for 4 kV Bus Undervoltage Protection**
The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that, Constellation did not verify the adequacy of design with respect to establishing the basis for the degaded voltage relay setpoint. Specifically, the load flow calculation used a non-conservative input to justify the 4160 Vac degraded voltage setpoint; and testing that was performed to analyze motor control center contactor voltage was non-conservative.

The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safet significance (Green) because it was a design deficiency that did not result in the loss of electrical distribution system operability or functionality. This finding did not have a cross-cutting aspect because the most significant contributor of the performance deficiency was not reflective of current licensee performance.
Inspection Report# : 2009006 *(pdf)*

**Significance:** G Aug 28, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
**Inadequate Design Control for Potential Air Entrainment i the ECCS**
The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that, Constellation did not ensure the adequacy of the emergency core cooling

system (ECCS) design under post-accident conditions. Specifically, Constellation had not performed adequate analyses or testing to evaluate the potential impact of air being entrained in the flow from the refueling water tank (RWT) during the transistion of the ECCS from the RWT to the containment sump. in response, Constellation entered this issue into their corrective action program and performed analyses to demonstrate that this condition did not renter associated equipment inoperable.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in a loss of ECCS operability or functionality. This finding did not have a cross-cutting aspect because the most significant contributor of the performance deficiency was not reflective of current licensee performance.
Inspection Report# : 2009006 *(pdf)*

**Significance:** G Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
**Inadequate Test Control associated with the Safety-Related Auxiliary Feedwater Pump Room Emergency Ventilation System**
The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” for Units 1 and 2 because Constellation did not establish an adequate test program to assure that the auxiliary feedwater (AFW) pump room emergency ventilation system would perform satisfactorily in service. Specifically, the performance evaluations used to determine the equipment performance of the emergency ventilation system did not incorporate the requirements and acceptance limits contained in the Updated Final Safety Analysis Report (UFSAR). This resulted in Constellation not recognizing that the AFW pump room emergency ventilation system did not meet the design requirements stated in the UFSAR. Constellation entered this issue into their corrective action program (CAP) for resolution as CR-2008-002833. The immediate corrective action included performing an operability determination to verify the operability of the Unit 1 and 2 turbine driven auxiliary feedwater (TDAFW) pumps. The planned corrective action included the installation of larger ventilation fans to obtain the required flow rate and to create a preventive maintenance task to measure the airflow for each emergency ventilation fan.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of the AFW system, which responds to initiating events to prevent undesirable consequences (i.e., core damage). Additionally, the finding is similar to a “not minor if” example in Appendix E of IMC 0612, example 3.i, in that the facility was not consistent with the UFSAR and required that an analysis be re-performed to ensure that accident analysis requirements were met. The inspectors determined that the finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its Technical Specifications (TS) allowed outage time, and did not screen as potentially risk significant due to external events. There is no cross-cutting aspect identified for this finding because the inspectors determined that the performance deficiency is the result of a latent issue and Constellation did not have a reasonable opportunity to identify the problem.
Inspection Report# : 2009003 *(pdf)*

**Significance:** G Mar 31, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Did Not Follow MSIV Actuator System Procedure**
A self-revealing NCV of TS 5.4.1.a, “Procedures,” was identified because Constellation did not follow procedures for refilling the No. 11 main steam isolation valve (MSIV) actuator accumulator with nitrogen. On February 6, 2009, while lining up to refill the No. 11 MSIV actuator accumulator, operators removed a blank flange which caused nitrogen gas to be released. This resulted in the No. 11 MSIV being inoperable. Immediate corrective actions included reinstallation of the blank flange, refilling the nitrogen accumulator to the required pressure, and conducting a prompt investigation. Constellation entered this issue into their CAP for further evaluation.

The inspectors determined that this finding is more than minor because it is associated with the human performance attribute of the Mitigating System cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its TS allowed outage time, and did not screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the area of human performance because Constellation did not effectively communicate human error prevention techniques, such as holding an adequate pre-job brief and performing proper self and peer checking (H.4.a)

Inspection Report# : 2009002 *(pdf)*

**Significance:** G Dec 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
**Inadequate Design Control Associated with the Auxiliary Feedwater Pump Room Temperature.**
The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," because Constellation did not provide design control measures for verifying the adequacy of a design calculation used to determine the maximum initial room temperature for the auxiliary feedwater (AFW) pump room. Specifically, Constellation used non-conservative inputs and assumptions in the design calculation that resulted in Constellation not recognizing that the design basis accident (DBA) temperature limit could have been exceeded. The AFW pump room emergency ventilation system must be established prior to exceeding a specified maximum initial room temperature to ensure that the AFW pump room temperature would not exceed the design limit of 130°F. Constellation entered this issue into their corrective action program (CAP) for resolution. The immediate corrective actions included establishing compensatory requirements for initiating emergency ventilation and conducting a re-analysis of the design calculation. The planned corrective action includes a modification to install a new automatic starting emergency ventilation system.

This finding is more than minor because it is similar to example 3.j. in Appendix E of IMC 0612 in that the non-conservative inputs and assumptions resulted in a condition where it created reasonable doubt on the operability of the turbine-driven AFW (TDAFW) pumps . The finding is associated with the design control attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the finding is of very low safety significance (Green) because the finding is a design and qualification deficiency confirmed not to result in the loss of operability per "Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment." There is no crosscutting aspect associated with this finding.

Inspection Report# : 2008005 *(pdf)*

**Significance:** G Dec 30, 2008
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Untimely Corrective Actions Associated with 480 Volt Power Supply Disconnects.**
A self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified because Constellation did not take timely corrective actions following the identification of degraded 480 volt power supply handswitch disconnects. This led to the failure of the Unit 1 No. 13 component cooling (CC) pump to start during performance of a surveillance test. The inspectors noted that Constellation had previously identified handswitch disconnects failures in 2006 and 2007. Immediate corrective action included replacing the handswitch disconnect for the 13 CC pump, conducting an extent of condition review, and entering this condition into their CAP.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the finding was of very low safety significance because the finding does not represent the loss of system safety function, does not represent actual loss of safety function of a single train for greater than its technical specification allowed

outage time, and does not screen as potentially risk significant due to external events. The finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not take appropriate corrective actions to address safety issues associated with handswitch disconnects in a timely manner commensurate with their safety significance and complexity (P.1.d per IMC 0305).

Inspection Report# : 2008005 *(pdf)*

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## Barrier Integrity

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## Emergency Preparedness

**Significance:** W Jan 14, 2009
Identified By: NRC
Item Type: VIO Violation
**Failure to Maintain Emergency Plans**
Constellation identified a violation associated with the failure to meet emergency preparedness planning standard 10 CFR 50.47(b)(4). For the period of August 31, 2005, until April 10, 2008, the emergency action level (EAL) table's fission product barrier matrix contained an inaccurate threshold associated with identifying the potential loss of the containment barrier. The error was not identified by Constellation prior to implementation of the revised EAL table. Constellation evaluated this condition and took prompt actions to correct the inaccurate EAL.

The finding was more than minor because it was associated with the procedure quality (EAL changes) attribute of the Emergency Preparedness cornerstone and affected the associated cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. This finding is associated with risk significant planning standard 10 CFR 50.47(b)(4) and 10 CFR 50 Appendix E, IV.B, "Assessment Actions." The NRC determined that the finding is preliminarily White, a finding with low to moderate safety significance, that may require additional NRC inspection. Using Emergency Preparedness Significance Determination Process, Inspection Manual Chapter (IMC) 0609, Appendix B, Sheet 1, "Failure to Comply," the finding was determined to be a risk significant planning standard (RSPS) problem and an RSPS degraded function (White). Additionally, IMC 0609, Appendix B contains an example of Loss of RSPS Function for 10 CFR 50.47 (b)(4); more than one Alert, or any Site Area Emergency would not be declared that should be declared, resulting in a White finding. There is no crosscutting aspect associated with this finding since it is not reflective of current licensee performance.

Inspection Report# : 2008502 *(pdf)*

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## Occupational Radiation Safety

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## Public Radiation Safety

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## Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings

pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

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# Miscellaneous

Last modified : December 10, 2009